TechIP:
A Methodology for Emerging Information Technology Insertion & Integration

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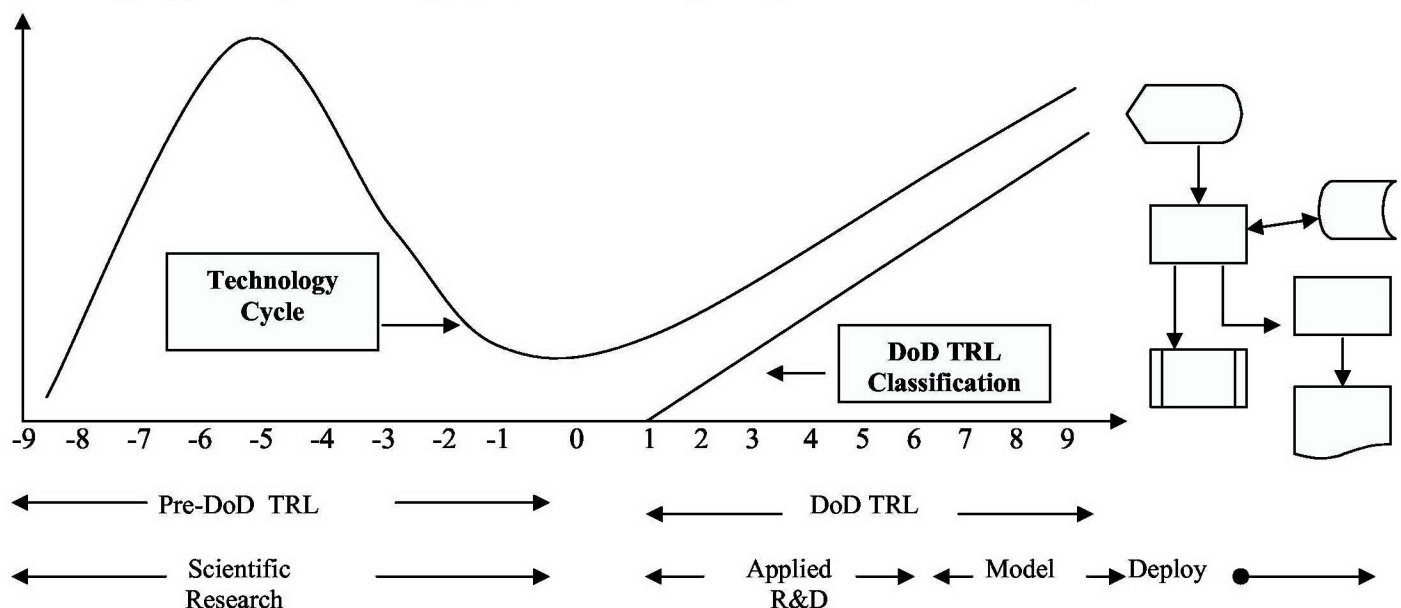(888) 325 0500 ext. 100 has.patel@infologic.com

1. INTRODUCTION

A number of current and planned government information system projects are mission critical, network-centric, complex and have long life cycles. In addition, they incorporate a number of requirements that need the application of emerging technologies, such as multimedia (data, voice, image) processing and software agents. To implement these requirements, the system designers are required to insert, integrate and manage proven advances in Emerging Information Technology (EIT) in to the system. This paper discusses a methodology, called **TechIP** (**Tech**nology **I**nsertion **P**lan). TechIP will manage technology maturation, demonstration and transition into a system. TechIP consists of three components:

- **tManager** (Technology Manager) will guide the technologies as they move from one maturity level to another.
- **iManager** (Insertion and Integration Manager) model will define the technologies to be deployed.
- **pManager** (Profile and Project Manager) is a technology profiling and planning tool that will manage the technology insertion and integration process.

2. tManager

To meet the requirements identified above, we would like to propose a model called tManager – shown below. It will manage the technologies as they mature from one level to another.

Technology Hype Axis (for Technology Cycle) **/TRL Maturity Axis** (for DoD TRL Classification)
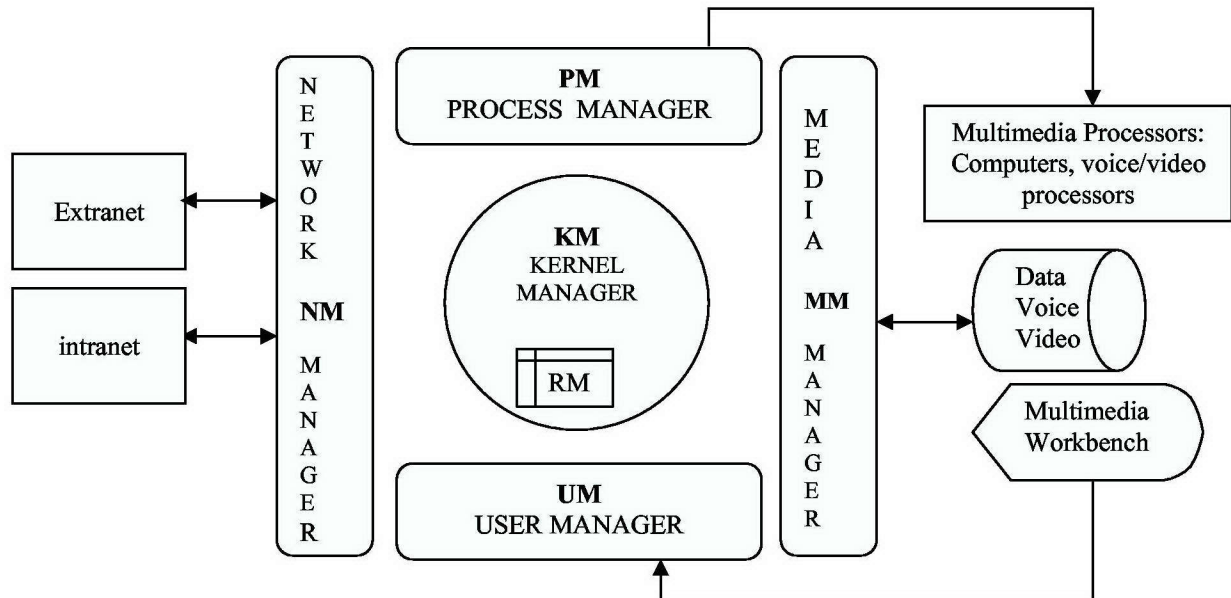

In the above model, we have extended the DoD TRL ((Technology Readiness Levels) explained in the Appendix 6 of FAR 5000.2-R.. In this nine step classification, technology matures from "TRL 1 – Scientific research begins to be translated into applied R &D" to "TRL 9 – Technology proven through successful mission operations". Before

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14. ABSTRACT

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TRL 1 is achieved, technologies go thru a number of phases as shown in the technology cycle part of above figure. Normally, a large number of new technologies start with hype, and a few reach the plateau of productivity.

3. iManager

After the technology selection process is completed in the tManager model, there is a need to apply a methodology to deploy the selected technologies in a system. In order to facilitate the technology insertion and integration in a system, we would like to propose a reference model called iManager – shown below.

The objective of this model is to map EIT in to complex information systems. It consists of following components:

Kernel Manager (KM): It is the most significant component of a system. These functions are mainly carried out by the system's operating system.

Resource Manager (RM): This is KM's database, and will extend the services to provide multimedia (data, voice, and video) processing.

User Manager (UM): This component will be nearest to the end users. UM will manage multimedia workstations, translate user transactions to the format needed by KM, and provide Help/Training facilities.

Process Manager (PM): This component will be responsible for providing multimedia processing facilities. These facilities will include process build-up, process execution, and maintenance of process and object libraries.

Multimedia Manager (MM): This is the extension of current database functions, and will work in conjunction with RM to store and manage multimedia information.

Network Manager (NM): This component will provide facilities to manage a heterogeneous network environment. For example - It will be responsible for controlling network resource usage, and transferring requests between external and local resources.

4. pManager

The objective of pManager is to manage the technologies identified by the tManager and iManager components of TechIP. Key functions: (a) Profile a system's technology strategy & status and compare them to industry-accepted "Best-Practices", (b) Develop and maintain a technology deployment plan , (c) Provide a repository of the sub-systems, hardware, and software deployed in the system, and (d) Prepare necessary management and project planning reports and documents.

CONCLUSION

This paper proposes a methodology to incorporate emerging technologies into complex government information systems. To obtain the TechIP white paper, or for any questions or suggestions, please contact the author at has.patel@infologic.com